

Labor Market Analysis: 0999.00/Other Engineering and Related Industrial Technologies
Electric Vehicle Station Technician - Noncredit award requiring 144 to <192 hours; Noncredit award requiring 96 to <144 hours; Noncredit award requiring from 48 to <96 hours
 Los Angeles Center of Excellence, October 2023

Summary

| | | | |
|---|---|---|--|
| Program Endorsement: | Endorsed: All Criteria Met <input type="checkbox"/> | Endorsed: Some Criteria Met <input checked="" type="checkbox"/> | Not Endorsed <input type="checkbox"/> |
| Program Endorsement Criteria | | | |
| Supply Gap: | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> (See comments below) | |
| Living Wage: (Entry-Level, 25 th) | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| Education: | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| Emerging Occupation(s) | | | |
| | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |

The Los Angeles Center of Excellence for Labor Market Research (LA COE) prepared this report to provide regional labor market supply and demand data related to two middle-skill occupations:

- **Electric Motor, Power Tool, and Related Repairers (49-2092)** Repair, maintain, or install electric motors, wiring, or switches.¹
- **Electrical and Electronics Repairers, Powerhouse, Substation, and Relay (49-2095)** Inspect, test, repair, or maintain electrical equipment in generating stations, substations, and in-service relays.²

Middle-skill occupations typically require some postsecondary education, but less than a bachelor's degree.³ This report is intended to help determine whether there is demand in the local labor market that is not being met by the supply from community college programs that align with the relevant occupations.

Based on the available data, there does not appear to be a supply gap for the occupations of interest. Since this field is emerging and there are not dedicated occupational and/or educational codes for electric vehicle charging technicians, it is difficult to gauge supply/demand for these occupations. While this program does not meet the traditional supply/demand endorsement criteria, there may be demand for these workers from local employers that is not reflected in

¹ [Electric Motor, Power Tool, and Related Repairers \(bls.gov\)](#)

² [Electrical and Electronics Repairers, Powerhouse, Substation, and Relay \(bls.gov\)](#)

³ The COE classifies middle-skill jobs as the following:

- All occupations that require an educational requirement of some college, associate degree or apprenticeship;
- All occupations that require a bachelor's degree, but also have more than one-third of their existing labor force with an educational attainment of some college or associate degree; or
- All occupations that require a high school diploma or equivalent or no formal education, but also require short- to long-term on-the-job training where multiple community colleges have existing programs.

traditional labor market data. For this reason, real-time labor market data is included in this report as well – to provide a more nuanced view of the regional job market for these middle-skill occupations related to electric vehicle charging. Furthermore, entry-level wages exceed the self-sufficiency standard wage in both Los Angeles and Orange counties, and more than one-third of current workers in the field have completed some college/associate degree or less education.

Therefore, due to some of the criteria being met, the LA COE endorses this proposed program. Detailed reasons include:

Demand:

- **Supply Gap Criteria** – Over the next five years, **98 jobs are projected to be available annually** in the region due to retirements and workers leaving the field, **which is less than the three-year average of 389 awards conferred** by educational institutions in the region.
 - Since this field is emerging and there are not dedicated occupational and/or educational codes for electric vehicle charging technicians, it is difficult to gauge supply/demand for these occupations.
 - The TOP and CIP codes used in this report to measure supply train for many different electrical occupations, and not solely for electric vehicle charging technicians. Therefore, **supply data is overstated** when considering solely electric vehicle charging technicians.
 - Over the past 12 months, there were **65 online job postings that specifically mentioned electric vehicle charging**. The highest number of job postings were for electromechanical technicians, electrical systems engineers, journeyman electricians, and vehicle development engineers.
- **Living Wage Criteria** – Within Los Angeles County, both occupations have **entry-level wages above the self-sufficiency standard hourly wage** (\$18.10/hour).⁴
- **Educational Criteria** – Within the greater LA/OC region, **66% of the annual job openings** for occupations related to electric vehicle charging **typically require a postsecondary non-degree award**
 - Furthermore, the national-level educational attainment data indicates **between 40% and 48% of workers in the field have completed some college or an associate degree**.

Supply:

- There are **17 community colleges** in the greater LA/OC region that issue awards related to electric technology, conferring an average of **345 awards annually** between 2019 and 2022.
- Between 2019 and 2021, there was an average of **44 awards conferred annually** in related training programs by non-community college institutions throughout the greater LA/OC region.

⁴ Self-Sufficiency Standard wage data was pulled from The Self-Sufficiency Standard Tool for California. For more information, visit: <http://selfsufficiencystandard.org/california>.

Occupational Demand

Exhibit 1 shows the five-year occupational demand projections for these two electric repairer occupations. In the greater Los Angeles/Orange County region, the number of jobs related to these occupations is projected to decrease by 3% through 2026. However, there will be nearly 100 job openings per year through 2027 due to retirements and workers leaving the field.

NOTE: These occupational code includes a variety of electrical jobs and not solely electrical vehicle charging technicians. Therefore, the data in Exhibit 1 is likely overstated for electric vehicle charging technicians.

Exhibit 1: Occupational demand in Los Angeles and Orange Counties⁵

| Geography | 2022 Jobs | 2027 Jobs | 2022-2027 Change | 2022-2027 % Change | Annual Openings |
|--------------|--------------|--------------|------------------|--------------------|-----------------|
| Los Angeles | 813 | 765 | (48) | (6%) | 69 |
| Orange | 292 | 305 | 12 | 4% | 29 |
| Total | 1,105 | 1,070 | (35) | (3%) | 98 |

Wages

The labor market endorsement in this report considers the entry-level hourly wages for these electric repairer occupations in Los Angeles County as they relate to the county's self-sufficiency standard wage. Orange County wages are included below in order to provide a complete analysis of the greater LA/OC region. Detailed wage information, by county, is included in Appendix A.

Los Angeles County

Both occupations have entry-level wages above the self-sufficiency standard wage for one adult (\$18.10 in Los Angeles County). Typical entry-level hourly wages are in a range between \$19.89 and \$44.87. Experienced workers can expect to earn wages between \$30.18 and \$59.17.

Exhibit 2: Earnings for Occupations in LA County

| Occupation | Entry-Level Hourly Earnings (25 th Percentile) | Median Hourly Earnings | Experienced Hourly Earnings (75 th Percentile) | Median Annual Earnings* |
|---|---|------------------------|---|-------------------------|
| Electric Motor, Power Tool, and Related Repairers (49-2092) | \$19.89 | \$24.58 | \$30.18 | \$51,125 |
| Electrical and Electronics Repairers, Powerhouse, Substation, and Relay (49-2095) | \$44.87 | \$49.55 | \$59.17 | \$103,068 |

*Rounded to the nearest \$100

⁵ Five-year change represents new job additions to the workforce. Annual openings include new jobs and replacement jobs that result from retirements and separations.

Orange County

Both occupations have entry-level wages above the self-sufficiency standard wage for one adult (\$20.63 in Orange County). Typical entry-level hourly wages are in a range between \$20.91 and \$43.48. Experienced workers can expect to earn wages between \$31.47 and \$57.41.

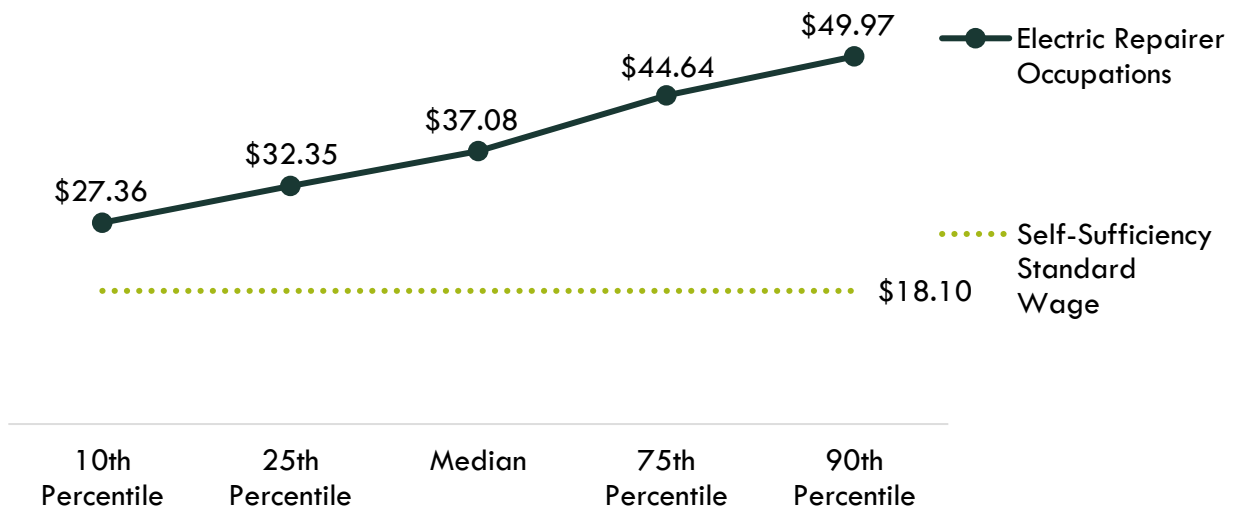
Exhibit 3: Earnings for Occupations in Orange County

| Occupation | Entry-Level Hourly Earnings (25 th Percentile) | Median Hourly Earnings | Experienced Hourly Earnings (75 th Percentile) | Median Annual Earnings* |
|---|---|------------------------|---|-------------------------|
| Electric Motor, Power Tool, and Related Repairers (49-2092) | \$20.91 | \$25.71 | \$31.47 | \$53,500 |
| Electrical and Electronics Repairers, Powerhouse, Substation, and Relay (49-2095) | \$43.48 | \$48.10 | \$57.41 | \$100,000 |

*Rounded to the nearest \$100

On average, the entry-level earnings for the occupations in this report are \$32.35; this is above the living wage for one single adult in Los Angeles County (\$18.10). Exhibit 4 shows the average wage for the occupations in this report, from entry-level to experienced workers.

Exhibit 4: Average Hourly Earnings for Electric Repairer Occupations in LA/OC



Job Postings

There were 65 online job postings related to electric vehicle charging listed in the past 12 months. Search parameters were set to only include job postings that mentioned electric vehicle charging and/or charger maintenance. Exhibit 5 displays the number of job postings by job title. The highest number of job postings were for electromechanical technicians, electrical systems engineers, journeyman electricians, and vehicle development engineers. The top skills were electric vehicles, business development, customer support, finance, and power tool operation. The top

employers, by number of job postings, in the region were EV Connect (10 job postings), Tritium Corporation (7), EVgo (5), Disney (4), Lectron (4), Phoenix Motorcars (4), and Rivian (4).

Exhibit 5: Job postings by occupation (last 12 months)

| Job Titles | # of Job Postings |
|----------------------------------|--------------------------|
| Electromechanical Technicians | 4 |
| Electrical Systems Engineers | 3 |
| Journeyman Electricians | 3 |
| Vehicle Development Engineers | 3 |
| Business Development Engineers | 2 |
| Construction Project Managers | 2 |
| Electrical Design Managers | 2 |
| Field Repair Technicians | 2 |
| Quality Assurance Test Engineers | 2 |
| Service Technicians | 2 |
| Software Engineers | 2 |
| Success Managers | 2 |
| Technical Support Managers | 2 |

Educational Attainment

The Bureau of Labor Statistics (BLS) lists the following typical entry-level education levels for the occupations in this report:

- **Postsecondary non-degree award:** *Electrical and electronics repairers, powerhouse, substation, and relay*
- **High school diploma or equivalent:** *Electric motor, power tool, and related repairers*

In the greater LA/OC region, the majority of annual job openings (66%) typically require a postsecondary non-degree award. Furthermore, the national-level educational attainment data indicates between 40% and 48% of workers in the field have completed some college or an associate degree. Of the 17% of electric vehicle charging job postings listing a minimum education requirement in the greater Los Angeles/Orange County region, 36% (4) requested high school or vocational training, and 64% (7) requested an associate degree.

Educational Supply

Community College Supply

Exhibit 6 shows the annual and three-year average number of awards conferred by community colleges in the related TOP codes: Electronics and Electric Technology (0934.00), and Electrical Systems and Power Transmission (0934.40). The colleges with the most completions in the region are Mt. San Antonio, Long Beach, and Coastline.

NOTE: There is not a TOP code dedicated to electric vehicle charging technicians. These TOP codes train for other electrical occupations not included in this report; therefore, community college supply data is overstated when only considering EV charging technicians.

Exhibit 6: Regional community college awards (certificates and degrees), 2019-2022

| TOP | Program | College | 2019-20 Awards | 2020-21 Awards | 2021-22 Awards | 3-Year Average |
|--------------------------------|---|--------------------------------|----------------|----------------|----------------|----------------|
| 0934.00 | Electronics and Electric Technology | East LA | 1 | 2 | 4 | 2 |
| | | El Camino | 8 | 5 | 2 | 5 |
| | | Glendale | 5 | - | 2 | 2 |
| | | LA City | 4 | - | - | 1 |
| | | LA Pierce | 4 | 17 | 14 | 12 |
| | | LA Southwest | 9 | - | 4 | 4 |
| | | LA Valley | 14 | 21 | 34 | 23 |
| | | Long Beach | 50 | 42 | 79 | 57 |
| | | Mt San Antonio | 48 | 39 | 152 | 80 |
| | | Pasadena | 24 | 23 | 27 | 25 |
| | | Rio Hondo | - | 1 | 2 | 1 |
| | | LA Subtotal | 167 | 150 | 320 | 212 |
| | | Coastline | 58 | 53 | 44 | 52 |
| | | Irvine | 37 | 9 | 16 | 21 |
| | | Orange Coast | 12 | 12 | 6 | 10 |
| | | Saddleback | 14 | 22 | 19 | 18 |
| | | Santa Ana | 8 | - | - | 3 |
| | | OC Subtotal | 129 | 96 | 85 | 103 |
| Supply Subtotal/Average | | | 296 | 246 | 405 | 316 |
| 0934.40 | Electrical Systems and Power Transmission | Santiago Canyon | 56 | 33 | - | 30 |
| | | OC Subtotal | 56 | 33 | - | 30 |
| | | Supply Subtotal/Average | 56 | 33 | - | 30 |
| Supply Total/Average | | | 352 | 279 | 405 | 345 |

Non-Community College Supply

For a comprehensive regional supply analysis, it is important to consider the supply from other institutions in the region that provide training programs for electric repair occupations. Exhibit 7 shows the annual and three-year average number of awards conferred by these institutions in relevant programs. Due to different data collection periods, the most recent three-year period of available data is from 2019 to 2021. Between 2019 and 2021, non-community college institutions in the region conferred an average of 44 bachelor and sub-baccalaureate awards. Bachelor's degrees are included since these awards are most academically aligned with the occupations of interest. Sub-baccalaureate awards include associate degrees, postsecondary awards, and other academic awards.

NOTE: These CIP codes train for all types of electrical engineering technologies, and not solely electric vehicle charging occupations. Therefore, the supply data in Exhibit 7 is overstated when considering supply for EV charging occupations only.

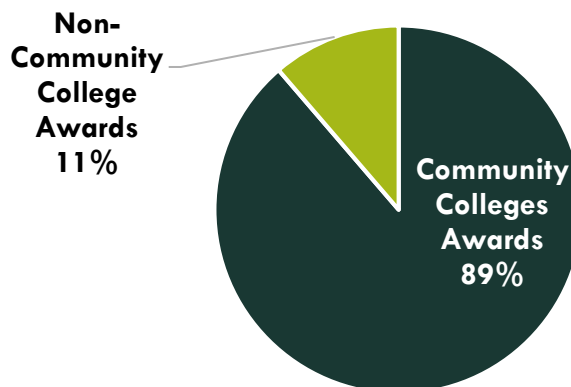
Exhibit 7: Regional non-community college awards, 2019-2021

| CIP | Program | Institution | 2019-20 Awards | 2020-21 Awards | 2-Year Average |
|-----------------------------|--|--|----------------|----------------|----------------|
| 15.0303 | Electrical, Electronic, and Communications Engineering Technology/Technician | Cal. State Polytechnic University-Pomona | 43 | 23 | 33 |
| | | CSU-Long Beach | 11 | 10 | 11 |
| 15.0399 | Electrical/Electronic Engineering Technologies/Technicians, Other | Southern California Institute of Technology* | 1 | - | 1 |
| Supply Total/Average | | | 55 | 33 | 44 |

*Denotes college that conferred sub-baccalaureate award(s).

Exhibit 8 shows the proportion of community college awards conferred in LA/OC compared to the number of non-community college awards for the programs in this report. Nine out of ten awards conferred in these programs are awarded by community colleges in the LA/OC region.

Exhibit 8: Community College Awards Compared to Non-Community College Awards in LA/OC Region, 3-Year Average



Appendix A: Occupational demand and wage data by county

Exhibit 9. Los Angeles County

| Occupation (SOC) | 2022 Jobs | 2027 Jobs | 5-Yr Change | 5-Yr % Change | Annual Openings | Entry-Level Hourly Earnings (25 th Percentile) | Median Hourly Earnings | Experienced Hourly Earnings (75 th Percentile) |
|---|------------|------------|-------------|---------------|-----------------|---|------------------------|---|
| Electric Motor, Power Tool, and Related Repairers (49-2092) | 291 | 286 | (4) | (2%) | 23 | \$19.89 | \$24.58 | \$30.18 |
| Electrical and Electronics Repairers, Powerhouse, Substation, and Relay (49-2095) | 522 | 479 | (43) | (8%) | 46 | \$44.87 | \$49.55 | \$59.17 |
| Total | 813 | 765 | (48) | (6%) | 69 | - | - | - |

Exhibit 10. Orange County

| Occupation (SOC) | 2022 Jobs | 2027 Jobs | 5-Yr Change | 5-Yr % Change | Annual Openings | Entry-Level Hourly Earnings (25 th Percentile) | Median Hourly Earnings | Experienced Hourly Earnings (75 th Percentile) |
|---|------------|------------|-------------|---------------|-----------------|---|------------------------|---|
| Electric Motor, Power Tool, and Related Repairers (49-2092) | 123 | 124 | 1 | 1% | 10 | \$20.91 | \$25.71 | \$31.47 |
| Electrical and Electronics Repairers, Powerhouse, Substation, and Relay (49-2095) | 169 | 180 | 11 | 7% | 18 | \$43.48 | \$48.10 | \$57.41 |
| Total | 292 | 305 | 12 | 4% | 29 | - | - | - |

Exhibit 11. Los Angeles and Orange Counties

| Occupation (SOC) | 2022 Jobs | 2027 Jobs | 5-Yr Change | 5-Yr % Change | Annual Openings | % Age 55 and older* | Typical Entry-Level Education |
|---|--------------|--------------|-------------|---------------|-----------------|---------------------|--------------------------------|
| Electric Motor, Power Tool, and Related Repairers (49-2092) | 414 | 411 | (3) | (1%) | 33 | 34% | HS diploma or equivalent |
| Electrical and Electronics Repairers, Powerhouse, Substation, and Relay (49-2095) | 691 | 659 | (32) | (5%) | 65 | 21% | Postsecondary non-degree award |
| Total | 1,105 | 1,070 | (35) | (3%) | 98 | - | - |

*The average percentage of workers age 55 and older across all occupations in the greater LA/OC region is 27%. *Electric motor, power tool, and related repairers* has a larger share of older workers, which typically indicates greater replacements needs to offset the amount of impending retirements.

Appendix B: Sources

- O*NET Online
- Lightcast (formerly Emsi)
- Bureau of Labor Statistics (BLS)
- California Employment Development Department, Labor Market Information Division, OES
- California Community Colleges Chancellor’s Office Management Information Systems (MIS)
- Self-Sufficiency Standard at the Center for Women’s Welfare, University of Washington
- Chancellor’s Office Curriculum Inventory (COCI 2.0)

For more information, please contact:

Luke Meyer, Director
 Los Angeles Center of Excellence
Lmeyer7@mtsac.edu

